



**THE DATASHEET OF
NTMFS1D3N04XMT1G**



High Voltage Switching Diodes

BASH16MX2W

The BASH16MX2W Switching Diode is a spin-off of our popular SOT-23 three-leaded device. It is designed for switching applications and is housed in the X2DFNW2 (1.0x0.6 mm) surface mount package. This device is ideal for low-power surface mount applications, where board space is at a premium.

Features

- 175 °C $T_{J(max)}$ -Rated for High Temperature, Mission Critical Applications
- Wettable Flank Package for optimal Automated Optical Inspection (AOI)
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

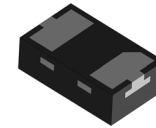
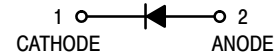
Rating	Symbol	Value	Unit
Continuous Reverse Voltage BASH16 BASH19 BASH20 BASH21	V_R , V_{RRM}	100 120 200 250	Vdc
Continuous Forward Current	I_F	200	mAdc
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	I_{FRM}	500	mA
Non-Repetitive Peak Forward Current (Square Wave, $T_J = 25\text{ °C}$ prior to surge) BASH16 $t = 1\ \mu\text{s}$ $t = 1\ \text{ms}$ $t = 1\ \text{s}$ BASH19/20/21 $t = 1\ \mu\text{s}$ $t = 1\ \text{ms}$ $t = 1\ \text{s}$	I_{FSM}	5.0 2.0 0.5 9.0 3.0 1.7	A

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board $T_A = 25\text{ °C}$ (Note 1)	P_D	300	mW
Thermal Resistance Junction-to-Ambient (Note 1)	$R_{\theta JA}$	400	°C/W
Thermal Resistance Junction-to-Solder Point (Note 1)	$R_{\theta JSP}$	105	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +175	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Mounted onto a 4 in square FR-4 board 10 mm sq. 1 oz. Cu 0.06" thick single sided. Operating to steady state.



X2DFNW2
CASE 711BG

MARKING DIAGRAM



XX = Specific Device Code
M = Date Code

ORDERING INFORMATION

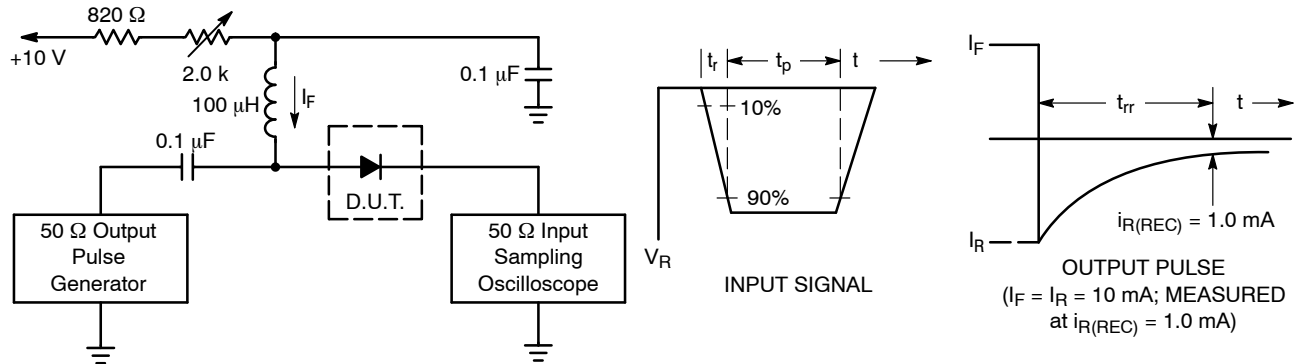
See detailed ordering, marking and shipping information on page 4 of this data sheet.

BASH16MX2W

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Voltage Leakage Current ($V_R = 80\text{ Vdc}$) ($V_R = 100\text{ Vdc}$) ($V_R = 150\text{ Vdc}$) ($V_R = 200\text{ Vdc}$) ($V_R = 80\text{ Vdc}$, $T_J = 150\text{ }^\circ\text{C}$) ($V_R = 25\text{ Vdc}$, $T_J = 150\text{ }^\circ\text{C}$) ($V_R = 100\text{ Vdc}$, $T_J = 150\text{ }^\circ\text{C}$) ($V_R = 150\text{ Vdc}$, $T_J = 150\text{ }^\circ\text{C}$) ($V_R = 200\text{ Vdc}$, $T_J = 150\text{ }^\circ\text{C}$)	BASH16 BASH19 BASH20 BASH21 BASH16 BASH16 BASH19 BASH20 BASH21	I_R	- - - - - - - - -	0.5 0.1 0.1 0.1 50 30 100 100 100 μA
Reverse Breakdown Voltage ($I_{BR} = 100\text{ }\mu\text{A}$)	BASH16 BASH19 BASH20 BASH21	$V_{(BR)}$	100 120 200 250	- - - - Vdc
Forward Voltage ($I_F = 100\text{ mA}$) ($I_F = 200\text{ mA}$)		V_F	- -	1.0 1.25 Vdc
Diode Capacitance ($V_R = 0$, $f = 1.0\text{ MHz}$)		C_D	-	3.0 pF
Reverse Recovery Time ($I_F = I_R = 10\text{ mA}$, $R_L = 50\text{ }\Omega$) ($I_F = I_R = 30\text{ mA}$, $R_L = 100\text{ }\Omega$)	BASH16 BASH19/20/21	t_{rr}	- -	6.0 50 ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
 2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 10 mA.
 3. $t_p > t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

BASH16MX2W

TYPICAL CHARACTERISTICS

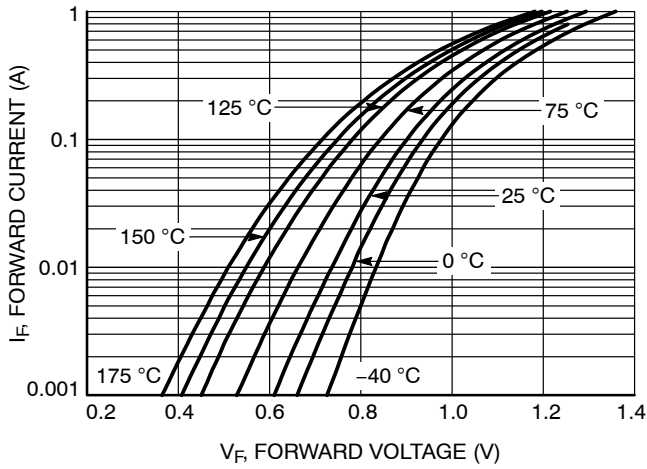


Figure 2. Forward Voltage

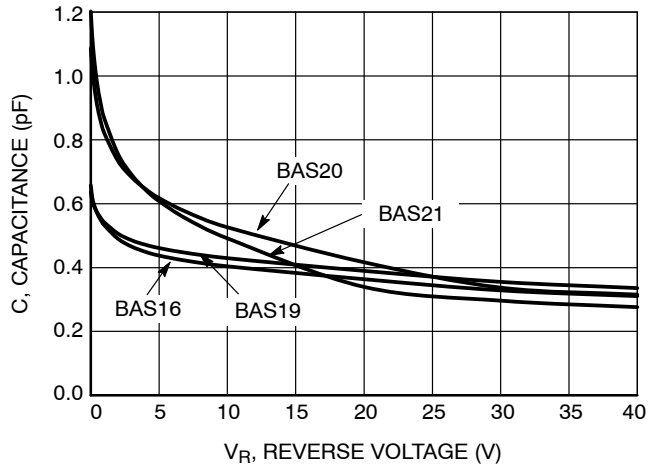


Figure 3. Total Capacitance

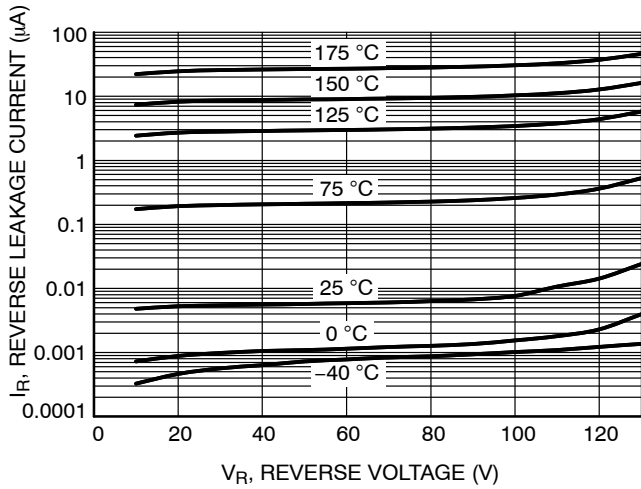


Figure 4. Reverse Current-BASH16

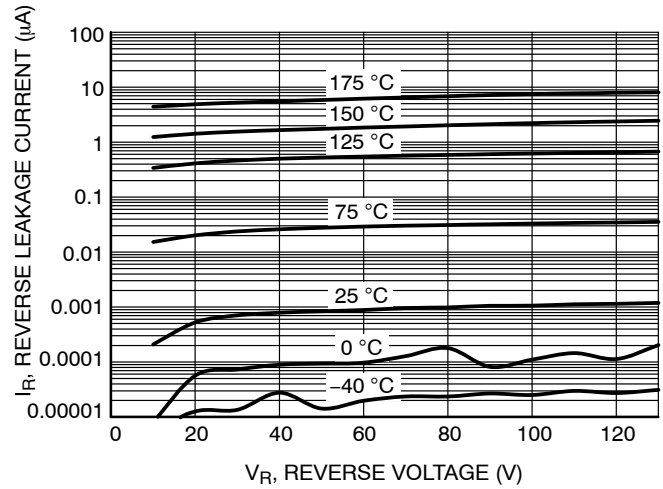


Figure 5. Reverse Current-BASH19

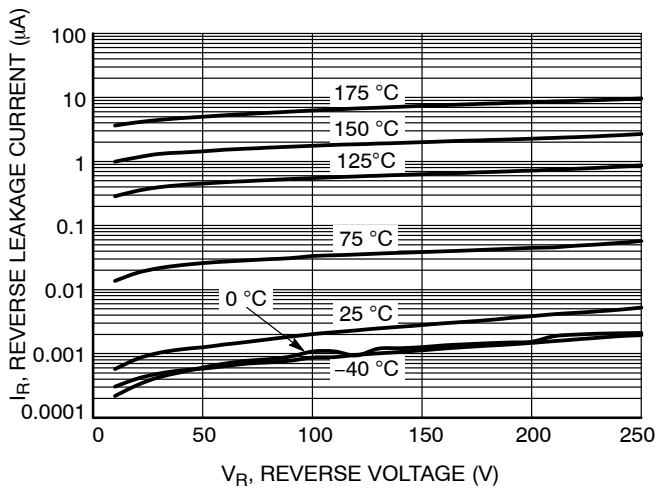


Figure 6. Reverse Current-BASH20

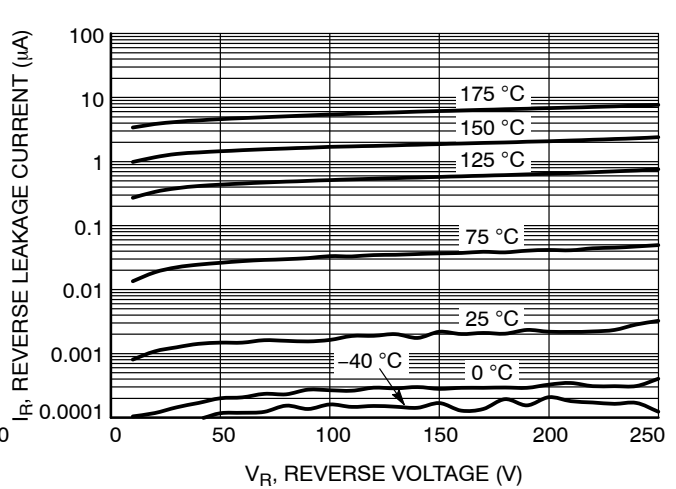


Figure 7. Reverse Current-BASH21

BASH16MX2W

DEVICE ORDERING INFORMATION

Device	Marking	Package	Shipping†
BASH16MX2WT5G, NSVBASH16MX2WT5G*	MF	X2DFN2 (Pb-Free)	8000 / Tape & Reel
BASH19MX2WT5G, NSVBASH19MX2WT5G*	MH		
BASH20MX2WT5G, NSVBASH20MX2WT5G*	MG		
BASH21MX2WT5G, NSVBASH21MX2WT5G*	ME		

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

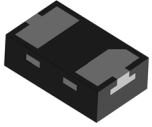
* NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

BASH16MX2W

REVISION HISTORY

Revision	Description of Changes	Date
4	Update of the front page case outline 3D model.	11/20/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

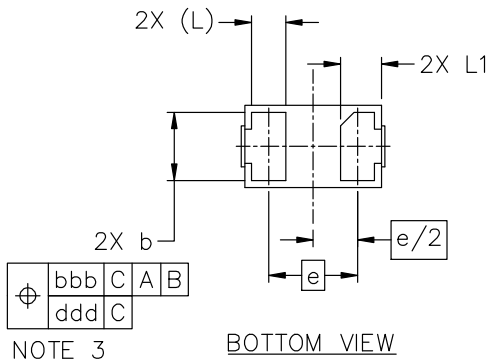
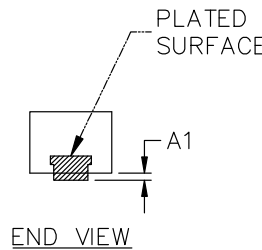
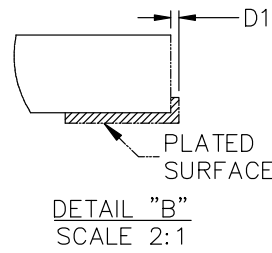
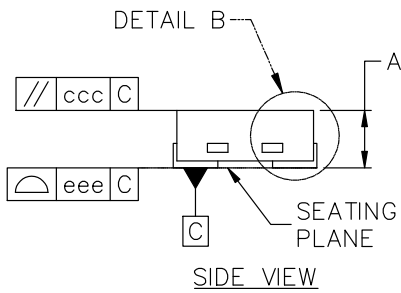
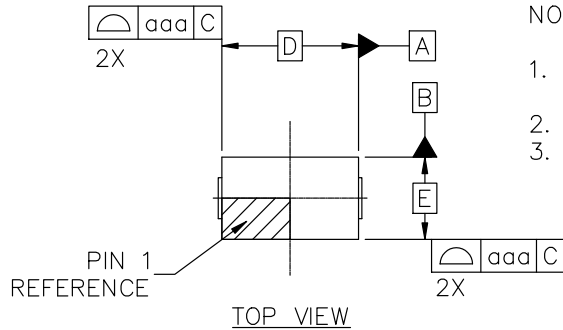


X2DFNW-2 1.00x0.60x0.37, 0.65P
CASE 711BG
ISSUE F

DATE 06 NOV 2025

NOTES:

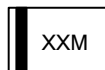
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.
3. DIMENSION b APPLIES TO THE PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 FROM THE TERMINAL TIP.



NOTE 3

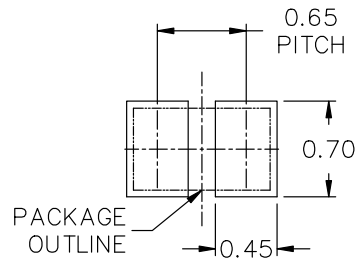
MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
A1	~	~	0.05
b	0.45	0.50	0.55
D	1.00 BSC		
D1	~	~	0.05
E	0.60 BSC		
e	0.65 BSC		
L	0.22 REF		
L1	0.24	0.28	0.34
TOLERANCE FORM & POSITION			
aaa	0.05		
bbb	0.10		
ccc	0.05		
ddd	0.05		
eee	0.05		

GENERIC MARKING DIAGRAM*



XX = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G", may or not be present. Some products may not follow the Generic Marking.



RECOMMENDED MOUNTING FOOTPRINT*

* FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE onsemi SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

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DESCRIPTION:	X2DFNW-2 1.00x0.60x0.37, 0.65P	PAGE 1 OF 1

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